

October 18, 2001

MEMORANDUM FOR: John Williams
Assistant Project Director, Survey Section C

FROM: Charles W. Challstrom
Director, National Geodetic Survey

SUBJECT: INSTRUCTIONS: Leveling Observations at
PITTSBURGH PENNDOT CORS Site,
PENNSYLVANIA (L25798)
Task Number: 8K6D4000

GENERAL:

The National Geodetic Survey (NGS) has established reference stations at the PITTSBURGH PENNDOT Continuously Operating Reference Station (CORS) site near Pittsburgh, Pennsylvania. These stations have been tied to the CORS antenna at the site, as well as to the local Federal Base Network/Cooperative Base Network (FBN/CBN) through GPS observations. This project will require precise leveling observations.

PURPOSE:

These stations at the site will provide a very accurate tie to the antenna as an aid to quickly reposition the antenna should it become necessary. The purpose of this leveling project is to establish precise NAVD 88 heights for the bench marks located near the CORS site.

LEVELING DATA FORMATS AND HANDLING:

- A. Leveling data will be submitted in "Blue Book" format (see "Input Formats and Specifications of the National Geodetic Survey Data Base," Volume I. Horizontal Control Data (revised November 1998) and Volume II. Vertical

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Control Data, Federal Geodetic Control Subcommittee, September 1994) to NGS Headquarters on floppy disks. Floppy disks shall contain the final version of the following files: HGF, HGZ, and HA in direct access format and RPT and ABS in sequential format. Data shall be submitted to the Field Operations Branch within 30 days of completion of the project.

- B. All bench marks established during this leveling project must be plotted on the best available map and the positions scaled using standard procedures, if the bench mark position cannot be determined with a GPS instrument. One set of these maps shall be submitted with the data. Those recovered bench marks which do not have PIDs will be treated as new marks.
- C. Recovery bench mark descriptions shall be written in accordance with the "Blue Book" (unified descriptions), except do not submit incomplete descriptions (i.e., descriptions with Recovery Type Codes of "RM"), unless the bench mark is destroyed or not recovered.

LIAISON:

The street address of the following NGS offices in Building SSMC3 is:

1315 East-West Highway
Silver Spring, MD 20910-3282

Questions concerning overall survey operations shall be directed to:

William T. McLemore, Jr.
Chief, Field Operations Branch
Observation and Analysis Division
SSMC3 -- N/NGS41, Station 8564
Telephone: 301-713-3215, ext. 117
FAX: 301-713-4327
E-Mail: Bill.McLemore@noaa.gov

Questions concerning the leveling portion of the project shall be directed to:

Robert J. Siclari
Project Development Branch
Spatial Reference System Division
SSMC3 -- N/NGS2, Station 8735
Telephone: 301-713-3194, ext. 130
Fax: 301-713-4324
E-Mail: Bob.Siclari@noaa.gov

For the PITTSBURGH site contact:

Charles (Chuck) Harpster
Pennsylvania Department of Transportation
Division of Photogrammetry and Surveys
Building 28
Harrisburg International Airport
Middleton, PA 17057
Telephone: 717-783-1518
Fax: 717-948-3826
E-mail: charpst@dot.state.pa.us

ADDRESS:

Keep the Field Operations Branch informed of the party's physical address and telephone number at all times.

PUBLICITY:

See "NGS Operations Handbook," Section 1.4.1.

EXPENSES:

Expenses for this project will be charged to Task Number 8K6D4000.

TRAVEL:

Travel and per diem are authorized in accordance with Federal Travel Regulations, Part 301-11, Per Diem Allowances. Current per diem rates were effective October 1, 2000.

ACKNOWLEDGMENT:

Please acknowledge receipt of these instructions in your Monthly Report.

Attachments

cc: N/NGS - D. Zilkoski
N/NGS - S. Misenheimer (first page only)
N/NGS - D. Milbert
N/NGS1 - G. Mitchell (first page only)
N/NGS11 - S. Cofer
N/NGS2 - E. McKay
N/NGS21 - S. Frakes
N/NGS21 - C. Craig (first page only)
N/NGS21 - D. Hendrickson
N/NGS4 - E. Wade
N/NGS4 - D. Hoar
N/NGS4 - M. Vorhauer
N/NGS41 - W. McLemore
N/NGS41 - J. Blackwell
FGCS Members (first page only)
Pennsylvania Department of Transportation -
Charles Harpster

Attachment 1

PITTSBURGH PENNDOT CORS SITE

LEVELING CONNECTIONS:

Tie leveling to existing leveling lines, as described in the "Geodetic Leveling Manual," is required. CORS site reference marks PIT1 A and PIT1 B have been set. The two reference stations will be connected to L9222. Bench marks 22 L RESET (PID KX1540), V 136 (PID KX1539), and 24 L (PID KX1537) should be used for the three required tie marks. Total distance (progress) to be leveled is approximately 13 km, including tie leveling. Office abstracts for this line will be sent under separate cover.

All High Accuracy Reference Network (HARN) control points within 4 km of the leveling route and all other existing NSRS horizontal control within 1 km of the leveling route will be connected to this project.

LEVELING SPECIFICATIONS:

The line shall be leveled in both directions to first-order, class II standards. Leveling in one direction is acceptable when leveling between old bench marks, provided the newly observed elevation difference agrees with the previous difference within tolerance limits. When new marks are set, or the newly observed elevation difference between two old marks does not agree with the previous difference within tolerance, one side of the new or moving mark must be leveled in both directions.

In addition, if multiple new marks are set between old marks, all but one section between the old marks are to be leveled in both directions. Specifications and other technical considerations for this project are given in the "NGS Operations Handbook," "Geodetic Leveling Manual," "Bench Mark Manual," and "Interim FGCS Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems."

LEVELING PROJECT TITLE, HGZ NUMBER, AND JOB CODE:

- A. The leveling project title, HGZ number, and job code shall be named, respectively:

PITTSBURGH PENNDOT CORS SITE SURVEY 2001, NEAR
PITTSBURGH, PENNSYLVANIA
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